RECORD OF DECISION
For

PHASE 1 of the
ST. JOHNS BAYOU AND NEW MADRID FLOODWAY PROJECT
MISSISSIPPI RIVER AND TRIBUTARIES
REVISED SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT 2

I have reviewed the 2002 Revised Supplemental Environmental Impact Statement (2002 RSEIS) describing the need for protection from flooding in the St. Johns Bayou and New Madrid Floodway basins in southeast Missouri. I have also reviewed the 2006 Revised Supplemental Environmental Impact Statement Number 2 (RSEIS 2) that describes compensatory mitigation and provides additional clarification of matters addressed in the 2002 RSEIS. My review included comments provided by other agencies and the public and the Corps of Engineers' analysis of and responses to the comments. Based on my review and the comments received on the proposed work from agencies and the public, I find the recommended plan (Alternative 3-1.B) as described in the 2002 RSEIS and the compensatory mitigation as described in the RSEIS 2 to provide the necessary flood protection, to be an environmentally acceptable plan, to serve the public interest, and to be compliant with all Federal, State, and local requirements. I have also considered the conditions imposed by the Missouri Department of Natural Resources in the March 9, 2006 Water Quality Certification, and concur with the implementation of those conditions. All practicable means to avoid and minimize environmental harm have been adopted and all significant unavoidable impacts are compensated. Certain aspects of wildlife habitat in the New Madrid Floodway will be improved due to implementation of the recommended plan. I, therefore, approve the recommended plan for construction.

Alternative flood damage reduction plans considered include the following: no-action; the authorized plan; several alternatives similar to the recommended plan with different New Madrid Floodway closure levee locations; alternate timing and elevations of gate and pump operations; a ring levee around East Prairie; work in St. Johns Bayou Basin only; a wildlife refuge; conversion of cropland to silviculture; and non-structural urban and rural measures. The no-action alternative would avoid all environmental impacts, but it would not provide the authorized objective of flood damage reduction and would not provide the environmental benefits associated with compensatory mitigation. The authorized plan was eliminated because a non-Federal sponsor was not available to cost-share the project and environmental impacts could be avoided by implementing the avoid and minimize alternative. The alternative levee closure locations resulted in only minimal reductions in environmental impacts and failed to produce a net economic benefit to the nation in comparison to the recommended plan, and therefore were not justifiable when integrated into the comprehensive plan. The remaining alternatives were given due consideration, but it became apparent that the level of flood protection they afforded was not in accord with overall project objectives.

The recommended flood damage reduction plan for Phase 1 of the project is Alternative 3-1.B, as outlined in the 2002 RSEIS. Primary flood damage reduction features of this plan are a 1,000 cfs pumping station and 24.0 miles of channel modifications for the St. Johns Basin and a closure levee with a gated outlet structure and a 1,500 cfs pumping station for the New Madrid Floodway. This work would reduce headwater and backwater flooding on up to 130,000 acres in both basins for a major (approximately 30-

year) flood event and prevent substantial damages from occurring to the urban areas of East Prairie and Pinhook, infrastructure, and the agricultural economy. The St. Johns Bayou Basin pumping station will be constructed along the Birds Point-New Madrid Setback levee several hundred feet to the east of the existing gravity outlet structure for St. Johns Bayou. The channels being modified in St. Johns Basin are St. Johns Bayou, Birds Point-New Madrid Setback Levee Ditch, and St. James Ditch. The 24.0 miles of channel modifications are significantly reduced from the authorized 144 miles of channel improvements and avoid most environmental impacts in that basin. There is no proposed channel improvement in the New Madrid Floodway for the recommended plan except for the placement of in-stream rock dikes for habitat improvement. The closure levee, gated outlet, and pumping station in the floodway would be constructed in the 1,500-foot gap at the lower end of the floodway to the east of the City of New Madrid, Missouri. The project also provides the capability to flood up to 6,400 acres during the winter waterfowl season creating a substantial gain in waterfowl habitat.

Avoid and minimize measures incorporated into the recommended plan for Phase 1 of the project include:

- avoiding work in over 120 miles of channels, including one reach where the state-endangered golden topminnow exists,
- reducing the authorized bottom width of channels as much as 60%,
- channel work occurring solely from one bank to preserve established vegetated areas,
- bank stability and transition measures,
- 29 in-stream structures for fishery habitat improvement,
- increasing the crop season stop pump elevation in St. Johns Bayou basin from 277 to 280 feet NGVD retaining 1,100 more acre-feet of water for fishery habitat,
- increasing the crop season stop pump elevation in the New Madrid Floodway from 275 to 280 feet NGVD and the prime fish spawning season stop pump elevation from 280.0 to 283.4 feet NGVD, thus retaining 11,300 more acre feet of water for fishery spawning and rearing habitat, and
- increasing the elevation at which the gated structure would be closed and the pump started to 284.4 until May 15 annually, thus allowing greater connectivity with the Mississippi River through the end of the mid-season rearing period for the fishery.

Unavoidable environmental impacts from the construction of the flood damage reduction features would include the following:

The elimination of 102 acres of jurisdictional wetlands (92 acres forested and 10 acres farmed wetlands) and the loss of jurisdictional wetland status on an estimated 520 acres of farmed wetlands due to decreased hydrology. Based upon the Hydrogeomorphic (HGM) Analysis, impacts to jurisdictional wetland status would total 964 Functional Capacity Units (FCUs).

The clearing of 536 acres of forested areas. Based upon the terrestrial Habitat Evaluation Procedure (HEP), impacts to terrestrial wildlife would total 2,059 Average Annual Habitat Units (AAHUs).

The reduction of flooding during February and March during the spring waterfowl migration. Based upon the Waterfowl Assessment Methodology (WAM), impacts

to waterfowl during February and March would total 204,039 Duck Use Days (DUDs).

A likely change in farming practices that would impact spring shorebird habitat. Based upon the Shorebird HEP, impacts to shorebirds total 761 AAHUs.

- The reduction of flooding during fish spawning and rearing periods. Based upon the fishery HEP, impacts to mid-season (April 1 to May 15) fish rearing habitat would total 1,884 AAHUs and 2,329 AAHUs in the St. Johns Basin and the New Madrid Floodway, respectively.

Additional impacts include a reduction of flooding (headwater and/or backwater) on vegetated wetlands. However, the jurisdictional status of these areas will not be impacted due to hydrologic parameters other than backwater flooding such as precipitation, headwater flooding, soils, and the high groundwater table.

Mitigation features are based upon compensating for impacts from the flood damage reduction project to significant fish and wildlife resources. Reduction in mid-season fish rearing habitat were determined to be the greatest impact in this highly agrarian project area. Mississippi River backwater flooding inundates thousands of acres of farmland in the project area on a regular basis in the spring. This farmland provides little to no habitat value for most Lower Mississippi River environmental resources and, in fact, land conversion for agriculture is a significant factor in the decline of Lower Mississippi River ecological resources. However, Mississippi River fish utilize these flooded fields for spawning and rearing purposes. Fish species that utilize flooded farmland within the project area are found throughout the Lower Mississippi River. Closing off of the Floodway along with mitigation will not likely reduce the overall quantity and quality of the Lower Mississippi River fishery.

The Council on Environmental Quality regulations at 40 C.F.R. § 1505.2(b) require a ROD to specify alternatives considered to be "environmentally preferable." I have taken the project as a whole under consideration to make this determination. I have determined that the recommended flood damage reduction plan with the planned compensatory mitigation is the environmentally preferred plan.

Mitigation features will not only fully compensate impacts to fishery in the area but will also significantly benefit a full range of Lower Mississippi River ecological resources that are constantly threatened by anthropogenic impacts. By compensating for fishery impacts, all other environmental impacts will be overcompensated, resulting in a net gain in critical habitat and features.

It is undisputed that Big Oak Tree State Park is a unique remnant ecosystem of national importance that is threatened by years of prior land management practices. The recommended alternative will restore the flood regime to the park, thereby preserving its unique flora and fauna. The park will be expanded through the purchase of 1,800 surrounding acres of farmland and restoring bottomland hardwoods on them.

Terrestrial resources within the project area will be improved by restoring 6,356 acres of bottomland hardwoods on cropland. Bottomland hardwood restoration will significantly improve terrestrial wildlife resources within the highly agrarian project area. Forested wetlands in the St. Johns Bayou Basin and New Madrid Floodway will be increased by 59% and 107%, respectively, in areas below an elevation of 300 feet NGVD. Bottomland hardwood restoration will include reforesting large tracts of farmland

(including 1,800 acres surrounding Big Oak Tree State Park), creation of wildlife corridors between Big Oak Tree State Park and Ten Mile Pond Conservation Area, and 64 miles of vegetated buffer strips along New Madrid Floodway channels.

All significant unavoidable impacts to shorebirds will be compensated by constructing 765 acres of moist soil units. Constructing 765 acres of moist soil units will increase the overall acreage of herbaceous wetlands in the project area by 55% in elevations below 300 feet NGVD.

Waterfowl habitat will be significantly improved throughout the project area by ponding water on approximately 6,400 acres during the winter waterfowl season, restoring bottomland hardwoods on farmland, and constructing moist soil units. These features will provide over 1.7 million duck-use-days more than currently exist in the project area

The human environment is benefited by the reduction in flood damages with their attendant economic and personal hardship and by an overall improved quality of life, due to the environmental improvements described above. The project will directly benefit the economically depressed communities of East Prairie and Pinhook as well as those persons who make a living in the St. Johns Bayou Basin and the New Madrid Floodway.

Compensatory mitigation associated with the recommended plan includes a basic mitigation feature that compensates for all significant unavoidable impacts from the flood damage reduction project except for mid-season fish rearing impacts in the New Madrid Floodway. (Additional mitigation measures to compensate for the remaining fishery impacts are described below.) The basic mitigation feature includes the following:

- Restore hydrology to Big Oak Tree State Park with Mississippi River surface water. The measures to be taken and coordination for their implementation are detailed in the June 9, 2003 Memorandum of Understanding between Missouri Department of Natural Resources and the Corps for the Protection of Big Oak Tree State Park.
  Acquire in fee and reforest 1,293 acres of cropland within the St. Johns Bayou Basin.
  Acquire in fee and reforest 4,126 acres of cropland within the New Madrid Floodway, including 1,800 acres of cropland surrounding Big Oak Tree State Park.
- Acquire in fee and construct 765 acres of moist soil units.
- Provide vegetated buffer strips along 64 miles of New Madrid Floodway channels. It is anticipated that lands will be acquired by a conservation easement.
  Create a wildlife corridor that connects Big Oak Tree State Park to the Ten Mile Pond Conservation Area. It is anticipated that a conservation easement will be obtained on these lands.
  Acquire in fee and construct 387 acres of borrow pits that would benefit floodplain fish as described in the RSEIS 2.

Additional techniques that supplement the basic mitigation feature and compensate for all remaining impacts to mid-season fish rearing habitat in the New Madrid Floodway are as follows:

Acquire in fee and reforest additional farmland within the St. Johns Bayou Basin, New Madrid Floodway, or batture areas.

- Increase flood durations on reforested areas during the period April 1 to May 15.
- Create, restore, or enhance large waterbodies such as Riley Lake or another similar floodplain lake(s).
  Restore small waterbodies.
- Create a spawning and rearing pool by modifying the operation of the outlet gates in the St. Johns Bayou and/or the New Madrid Floodway to hold water during the period of April 1 to May 15. Additionally, Best Management Practices will be developed to maximize fish access and habitat without jeopardizing economic benefits of the flood damage reduction project.

Pursuant to the Water Quality Certification, a minimum of 8,384 acres of mitigation lands shall be purchased in fee, plus 937 acres of vegetated buffer strips and wildlife corridor easements, and additional fee acreage or easements in the range of 387 acres to 1,087 acres of borrow pits and floodplain lakes. The goal of compensatory mitigation is to replace impacted habitat value (*i.e.,* FCUs, AAHUs, and DUDs) from the construction of the flood damage reduction project. It is anticipated that compensatory mitigation will entail the acquisition in fee of 8,384 acres to 9,034 acres. The habitat value that a single tract of mitigation land provides is dependent on site-specific conditions including but not limited to frequency of flooding, soil type, and planned mitigation features (*e.g.*, reforestation, borrow pit creation, large waterbody restoration, etc.). Therefore, mitigation credits for each tract of mitigation land will be calculated during the development of site-specific detailed mitigation plans and based upon the RSEIS 2. Mitigation credits will be verified through monitoring. The site-specific plans will be coordinated with the interagency mitigation team, consisting of representatives from the Corps, Missouri Department of Natural Resources, Missouri Department of Conservation, U.S. Environmental Protection Agency, and the U.S. Fish and Wildlife Service and the local sponsor. Cultural resources surveys will also be conducted on mitigation lands during the development of the site-specific plans. These surveys will be coordinated with the Missouri State Historic Preservation Officer (SHPO) and applicable Federally Recognized Indian Tribes. The mitigation goal will ultimately be reached when habitat values are appropriately replaced, not when a certain number of acres are procured and mitigation features implemented.

The compensatory mitigation described in the RSEIS 2 provides an adaptable plan that utilizes a host of techniques that demonstrate that all significant resource categories are compensated. To assure and document the effectiveness of compensatory mitigation features, the Corps will develop and implement a monitoring plan. Adaptive adjustments to the mitigation measures will be made based on results of these monitoring efforts. Monitoring of mitigation sites will be coordinated with the interagency mitigation team and be conducted prior to mitigation implementation and until mitigation has been determined to be successful. Adaptive management will be utilized throughout mitigation planning, implementation, and long term management. Adaptive management will seek opportunities to maximize habitat for as many resource categories as possible on the same tract of mitigation land while maintaining project flood control benefits and avoiding induced economic damages to adjacent properties.

The 1,800 acres of land surrounding Big Oak Tree State Park and farmland within the post-project 2-year floodplain will be the focus of the mitigation procurement effort. Resource agencies may also desire mitigation exchanges that acquire other areas wherein connectivity to the Mississippi River may be limited. These areas may not compensate for mid-season fish rearing habitat. However, these areas would likely enhance adult fish populations. Therefore, exchanges would still result in an overall enhancement for fish and wildlife resources. Additionally, preservation of existing tracts of high quality habitat may be pursued in lieu of reforestation. The Corps plans to grant mitigation lands acquired in fee to the Department of Interior for long term management once mitigation has been determined to be successful based upon monitoring results.

Per requirements specified in the Water Resources Development Act (WRDA) of 1986 and consistent with the Water Quality Certification, compensation measures will be implemented prior to and concurrent with construction and mitigation lands will be obtained from willing sellers. Other real property interests in lands will be required and acquisition must be completed concurrent with the construction of the project. These interests include flowage easements for the right to impound water on lands that would not necessarily be inundated during post project conditions. These include flowage easements for winter waterfowl ponding and springtime river connectivity for fishery habitat.

A plan to monitor the effects of project implementation on existing jurisdictional wetlands, water quality, aquatic biological communities, freshwater mussels, and fish passage will also be developed and implemented. The monitoring plan will be developed in coordination with the interagency mitigation team prior to initiation of construction activities. If project implementation is determined to cause impacts beyond those described in the 2002 RSEIS or the RSEIS 2, the Corps will make every effort to mitigate or otherwise ameliorate those impacts. Additionally, a portion of the freshwater mussel population will be relocated from construction reaches of Setback Levee Ditch. Relocation procedures will be coordinated with the U.S. Fish and Wildlife Service and the Missouri Department of Conservation.

As required by Water Quality Certification Condition # 6, additional channel modification alternatives in the St. Johns Bayou Basin were evaluated. This evaluation was presented to MDNR on July 29, 2003. None of these additional channel alternatives were found to be feasible. Therefore, no changes were made to the recommended plan due to these additional analyses.

Although construction of the project will not significantly impact the overall quality and quantity of the Lower Mississippi River fishery, all unavoidable impacts from the flood damage reduction project to the fisheries resource will be mitigated to the extent practicable. Based on the opinions of its experts, the Corps believes that the fisheries resource will be fully mitigated. All significant fish and wildlife losses will be fully compensated and, in most cases, a net benefit to the resource will likely result. I have considered the opinions of other experts who disagree with this conclusion. However, weighing the benefits to the human environment and to the other environmental resource categories against the mitigated impacts to the fisheries resource, I believe that the recommended plan represents the environmentally preferable alternative. The overall ecosystem of the project area will be improved with the project and mitigation. Therefore, I have determined that the recommended flood damage reduction plan with the planned compensatory mitigation is the environmentally preferred plan.

The Record of Decision completes the requirements of the National Environmental Policy Act.

23 May 06
Date

Robert Crear
Brigadier General, Corps of Engineers
Division Commander
President Designee, Mississippi River Commission